

History Of Lavex Halon Replacement

- 1974 Boeing specification introduced Halon 1301 Lavex bottle
- 1987 FAA requires bottles on airplanes over 30 seats
- 1994 Halon production banned
- FAA drafts Minimum Performance Standard (MPS)
- Proactive supplier initiates testing

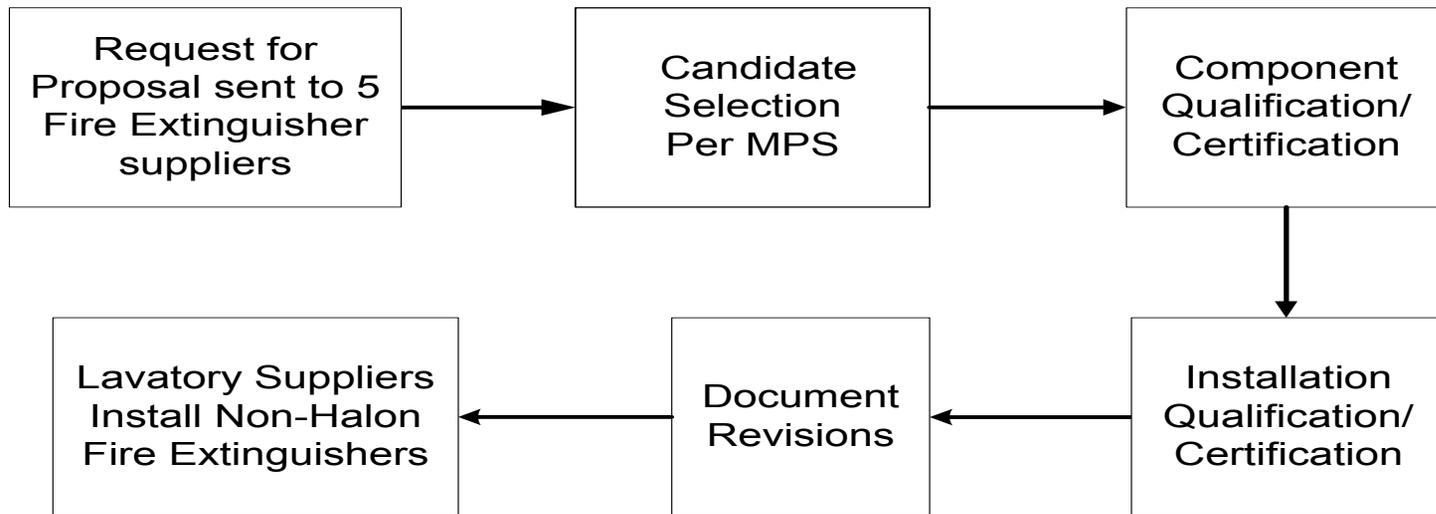


Boeing Participation

- 1993 International Halon Replacement Working Group member
- 1997 Lavex bottle MPS finalized
- 1998 Lavex bottle Specification revision released
- Team formed to Qualify and Certify bottles per the process:
FAA, Suppliers, Boeing:
Designated Engineering Representatives,
Materiel (Buyers), Design Engineering



Qualification/Certification Process for Halon Replacement in the Lavatory Trash Receptacle Fire Extinguisher



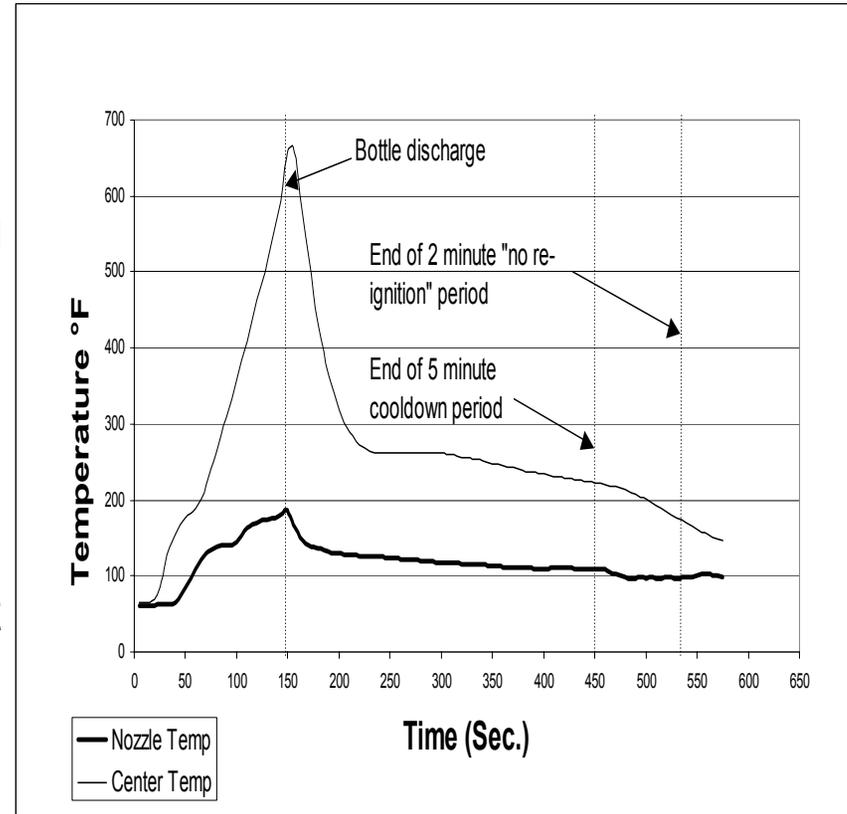
Candidate Selection of Lavex Bottles

- Request for Proposal to five Lavex suppliers
- Testing per the FAA MPS for four candidates completed 12/2000
- Safety Performance Criteria
 - Extinguish Fire
 - No re-ignition or burning embers
 - Activation within 60 seconds
 - Discharge duration < 15 seconds



Lavex Bottle Test Results

- Two Suppliers met MPS using FE 36™ agent
- One supplier met MPS using FM 200™ agent
- One supplier did not meet MPS using Envirogel™ agent
 - Partial discharge of agent occurred



Next Steps - Qualification/Certification Process

- Lavex bottle assembly qualification
 - Suppliers submit bottle/agent test plan to Boeing
 - Suppliers test to show compliance to Boeing Specification
 - FAA conformity of bottle/agent test units
- Certification of installation of Lavex bottle in lavatories
 - Boeing will test bottles in airplane configuration
 - FAA conformity of test units & test setup



Next Steps - Documentation

- Boeing will revise:
 - Seven lavatory specs to allow new non-halon bottle
 - Six Airplane Maintenance Manuals
 - Six Illustrated Parts Catalogs
- All Lavatory suppliers will revise:
 - 50+ lavatory assembly drawings
 - Hundreds of Component Maintenance Manuals



Conclusion

Boeing, the FAA and the suppliers will continue Working Together to provide safe, environmentally friendly extinguishing agents for Boeing airplanes.

